HOSPITAL AND MEDICAL FACILITIES SERIES
(Under the Hill-Burton Program)

design-
equipment

# *Planning*
# NURSERIES FOR NEWBORN
# *in the General Hospital*

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# FOREWORD

Medical and hospital procedures are constantly changing, requiring revisions in the physical arrangement of the various departments of a hospital. The nursery department is no exception in this respect. Continued improvement in hospital care for the newborn is the hoped for result.

This study is based largely upon the latest experience and advice of authorities in the care of the newborn and in related fields. As current guide material, it should be adapted to individual requirements in planning new nursery departments or in remodeling old ones.

Grateful acknowledgment is given to the Children's Bureau and the Committee on Fetus and Newborn of the American Academy of Pediatrics for their consultation and advice in the preparation of this publication. Dr. Alice D. Chenoweth for the Children's Bureau and Dr. William A. Silverman for the American Academy of Pediatrics, took major responsibility for the pediatric aspects of the document. Other groups providing valuable assistance include the National League for Nursing, Inc., the American Nurses Association, numerous State Health Departments and Medical Centers, and the American Hospital Association. The architectural features, both plans and text, are the work of O. Bernard Ives, Hospital Architect, Architectural and Engineering Branch, Division of Hospital and Medical Facilities. Another Division contribution was the equipment list in the appendix which was developed by the staff of the Equipment Planning Branch.

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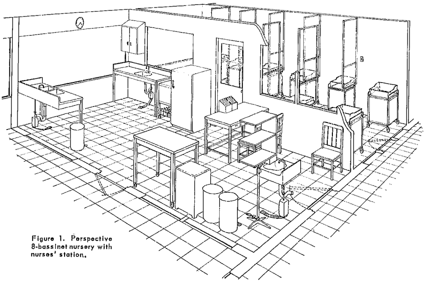

Figure 1. Perspective 8-bassinet nursery with nurses' station.

# PLANNING NURSERIES FOR NEWBORN

Because it is one of the areas in the hospital where patients are most vulnerable to infection, the nursery should be planned to provide the best means for the care, safety, and welfare of the infants. Although the plans and diagrams have been developed for hospitals of specified sizes, the principles set forth apply to all hospitals, large or small, new or old.

## DETERMINING THE SIZE OF THE NURSERY

Studies of practices in different localities indicate that the proportion of beds in general hospitals reserved for maternity patients varies from 10 to 25 percent. This variation may be attributed to the existence of a maternity hospital nearby, the number of maternity beds available in other hospitals, or, as in rural areas and small towns, the practice of patronizing hospitals in nearby larger communities. The number of maternity beds and bassinets required, therefore, should be based on the estimated number of live births expected in the hospital per year, taking into consideration the above factors, rather than on a rule-of-thumb relationship to the overall bed complement.

The number of live births per year must be supplied by the vital statistics reported by the local or State health department and adjusted according to the factors discussed above. (In planning nurseries, the number of fetal deaths or stillborn infants may be ignored.) In the following example, birth rates and length of stay are assumed.

Of the total live births thus determined, 6 to 8 percent will be premature.* This rate could go as high as 12 percent in poor economic areas. Subtracting the premature births from the total births and dividing the resultant number of full-term births by 73 (the number of periods in one year resulting from an average 5-day stay) gives the average number of bassinets required for full-term infants, based on 70 percent occupancy. This figure must be increased to accommodate 100 percent occupancy during peak periods.

The number of premature births divided by 18 (the number of periods in one year resulting from an average 20-day stay) will provide the average number of premature bassinets or incubators required. This figure also must be adjusted for 100 percent occupancy. If a premature center is located in the area, however, the hospital would not care for its own prematures. The need for premature bassinets and incubators at the hospital would thus be eliminated.

Observation bassinets are provided at the rate of 10 percent of the full-term bassinets in nurseries having a capacity of 20 or more. A minimum of two bassinets should be provided in smaller nurseries.

In the following example, it is assumed that the hospital must provide maternity and nursery facilities for a community with a population of 19,000. The birth rate is assumed to be 23.7 births per thousand.

$$\frac{19,000}{1,000} \times 23.7 = 450 \text{ live births per year.}$$

450 x 0.08 = 36 premature births per year.
450 - 36 = 414 full-term births per year.
414 ÷ 73 = 5.7, average number of full-term bassinets.
5.7 ÷ 0.70 = 8, number of full-term bassinets adjusted for 70 percent occupancy. (See Figure 1.)
36 ÷ 18 = 2, average number of premature bassinets.
2 ÷ 0.70 = 3, number of premature bassinets adjusted for 70 percent occupancy.
8 x 0.10 = 0.8 (the minimum of 2 observation bassinets applies).

Utilizing the above method, the following table shows the capacity of the nursery plans shown in Figures 2, 3, 4, and 5.

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*Premature refers to low birth weight of 5 lb. 8 oz. (2500 g.) or less. 1/

ESTIMATED BASSINETS BASED ON LIVE BIRTHS EXPECTED

| Live births per year | Bassinets | | | Approximate size of hospital (No. of beds) |
|---|---|---|---|---|
| | Full-term | Premature | Observation | |
| 440 | 8 | 3 | 2 | 50 |
| 880 | 16 | 5 | 2 | 100 |
| 1500 | 28 | 9 | 3 | 200 |

## BASIC RECOMMENDATIONS

Certain basic recommendations for planning nurseries for full-term and premature newborn infants have been developed, based on clinical experience and study.[2] These include: limiting the number of infants in each nursery; wide spacing of bassinets within each nursery; separation of bassinets by cubicle partitions; promoting the use of aseptic techniques and individual care by providing, among other things, ample space and handwashing facilities; limiting the number of bassinets served by one nurses' station; separating facilities for premature infants and for observing infants suspected of having infectious conditions; and providing optimum conditions of temperature, relative humidity, and ventilation.

## ROOMING-IN

Rooming-in service is not discussed in this paper, but will be the subject of a future publication. *

## FULL-TERM NURSERIES

Full-term nurseries (Figure 6) should be located in the maternity nursing unit as close to the mothers as possible and away from the line of traffic of other than maternity services. An area of 30 square feet per infant is recommended in each full-term nursery, exclusive of the nurses' station. Experience indicates that this area is the optimum space needed to give proper bedside care to each infant.

The extent of the spread of infection in a nursery can be reduced as the number of infants in each nursery room is reduced. The optimum number of full-term infants that can be cared for by a member of the nursing staff is in the range of 8 to 10.[2]

Bassinets should be at least 2 feet apart and, if partitions are used, cubicles should be large enough to permit bedside care. Partitions should be glazed or transparent so that the infants can be easily observed by the

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*In the Hill-Burton program of hospital construction, if rooming-in service is contemplated, at least one-third of the regular complement of bassinets must be provided.

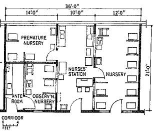

Figure 2. Nursery for 440 live births per year in a hospital of approximately 50 beds.

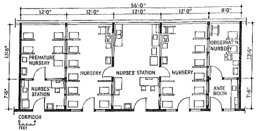

Figure 3. Nursery for 880 live births per year in a hospital of approximately 100 beds.

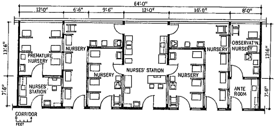

Figure 4. Nursery for 880 live births per year in a hospital of approximately 100 beds ("cohort" system).

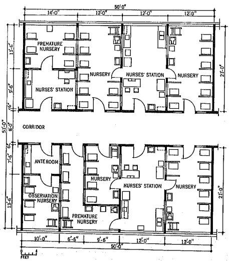

Figure 5. Nursery for 1500 live births per year in a hospital of approximately 200 beds.

## SUGGESTED LAYOUTS FOR VARIOUS-SIZED NURSERY SERVICES

(More detailed plans of rooms are shown on pages 5 and 8.)

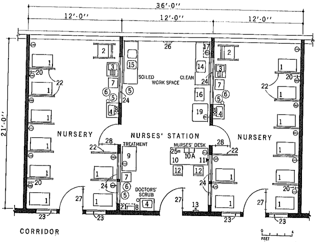

Figure 6. Detailed plan for two 8-bassinet full-term nurseries, with nurses' station between.

LEGEND

1. Bassinet with cabinet and pull-out shelf below, on 3-inch ball-bearing casters, with wheel lock.
2. Rocking chair with armrests and washable finish.
3. Utility table, 16" x 20", with top drawer to hold infant scales.
4. Lavatory, 18" x 22", with gooseneck spout and knee or foot controls, shelf over.
5. Waste receptacle, foot-controlled cover, removable waxed liner.
6. Soiled diaper receptacle, foot-controlled cover, removable waxed liner.
7. Soiled linen hamper on 3-inch ball-bearing casters, removable waxed liner, foot-controlled cover.
8. Paper towel dispenser, enclosed type.
9. Treatment table, 24" x 36" x 36" high, on 3-inch ball-bearing casters with wheel lock.
10. Nurse's desk, 30" high.

10A. Chart rack

11. Telephone outlet
12. Office chair, swivel, without arms.
13. Hookstrip.
14. Sink with gooseneck spout and knee or foot controls, in counter 36 inches high, open below.
15. Double compartment sink with gooseneck spout and knee or foot controls, in counter 36 inches high.
16. Bottle warmer on portable carriage.
17. Wall cabinet.
18. Incubator, on 3-inch ball-bearing casters with wheel lock.
19. Refrigerator, with built-in thermometer.
20. Double oxygen outlet.
21. Shelves (three), starting 42 inches above floor, for clean gowns, supplies.
22. Cubicle partition, starting 30 inches above floor, with 2-foot high clear glass or lucite panel, wall- and ceiling-hung metal frame.
23. Clear wire-glass view panel in steel frame, 1296 square inch maximum, bottom 42 inches above floor.
24. Clear plate-glass or lucite view panel, bottom 42 inches above floor.
25. Hand-wind clock, desk type.
26. Electric clock
27. Door with upper panel of wire glass.
28. Door with upper panel of clear glass.

nurse. To facilitate cleaning, partitions should not extend to the floor. Cubicle partitions might extend only from the bottom of the bassinet to 24 inches above. The supporting frames of the partitions may be attached to the ceiling and wall. Where a wall is not available, as in an island arrangement, some supports must extend to the floor.

In nurseries without cubicle partitions bassinets are often crowded together side by side. Although cubicle partitions may be objectionable from the standpoint of cleaning (and are often unsightly), they help to ensure that bassinets are properly spaced.

Fixed view windows between the nursery and the corridor permit visitors to view the infants from the corridor. These windows must be wire glass set in steel frames and must conform to National fire code requirements. Fixed view windows in partitions between nurseries and the nurses' station or between two nurseries facilitate observation of all infants in the area. These windows may be of clear plate glass or lucite and should be as large as practicable.

A door direct from each nursery to the corridor is recommended to permit faster evacuation in case of fire and easier movement of bassinets from the nursery to the mothers at feeding time and to avoid traffic through the nurses' station. This door, hung in a steel frame, should have a wire glass panel and must conform to National fire code requirements.

Furnishings for each full-term nursery should include the following: *

- A unit-type bassinet which includes storage and workspace. One type has a fixed storage cabinet with doors or a pull-out drawer below the basket. In a second type the cabinet can be pulled out so that the top may be used as a worktable. Another model has a stationary storage cabinet with a shelf that can be pulled out at one end to serve as a worktable. The basket should be removable and transparent with rounded corners to permit easy cleaning and good observation.

- A bedside cabinet for bassinets that do not have integral storage. The cabinet serves as a worktable and provides storage space for a 24-hour supply of items needed for care of the infant. Each cabinet should have a top about 16 x 20 inches, a drawer, a lower compartment with a shelf, and a door.

- Incubators that conform to specifications recommended by the American Academy of Pediatrics.

- A scale, preferably of the automatic beam type.

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*Detailed equipment lists for nurseries in hospitals of approximately 50, 100, and 200 beds are given in the Appendix.

- A utility table with a top drawer and shelf, for the infant scales. Incubators usually have their own scales.

- A lavatory with a gooseneck spout and hot and cold running water. Foot or knee controls are recommended. A soap dispenser with foot controls and an enclosed-type paper towel dispenser should be provided at each lavatory.

- A waste receptacle with removable waxed liner and foot-controlled cover, placed at each lavatory, for used cotton, dressings, and other disposables.

- A metal sanitary can with foot-controlled cover for soiled diapers.

- A large hamper with removable bag and foot-controlled cover for soiled linen other than diapers.

- A suction bulb or a mechanical suction device with a soft rubber tip and individual catheters for individual infants for each full-term nursery. Controls of the suction device should include a regulator to limit the suction to avoid injury to the infant. Suction should be provided from a central system.

- A rocking chair with arm rests and washable finish, in each nursery room, for use by the nurse while feeding the infants.

- One double oxygen outlet for every four bassinets. Oxygen should be piped in from a central system or from a source outside the nursery, with apparatus for administration and control of concentration.[2]

COHORT NURSERIES

Nurseries accommodating only four bassinets each are among those illustrated (Figure 7). The 4-bassinet nursery lends itself well to the "cohort" system, in which babies born during the same interval (no more than 48 hours) are kept in the same nursery. The babies arrive and leave together. After the departure of each cohort of babies, the nursery is thoroughly cleaned and disinfected before admission of the next cohort, thereby in theory breaking the chain of possible cross-infection by eliminating the overlapping of babies with infections.

The use of 4-bassinet nurseries does not imply increased staff. Two 4-bassinet nurseries may be under the care of one nursing person if she wears a scrub gown and scrubs properly between visits to each nursery. Two such nurseries may be considered the equivalent of one 8-bassinet nursery in assigning nurses' station and workspace.

Furnishings will be the same as those listed for full-term nurseries.

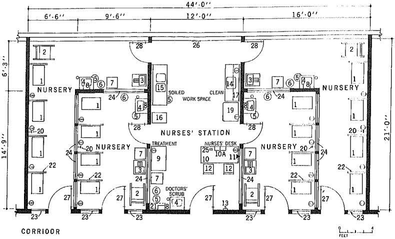
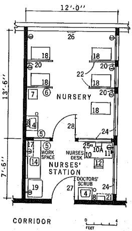


Figure 7. Detailed plan for two pairs of 4-bassinet full-term nurseries, with one nurses' station between ("cohort" system).



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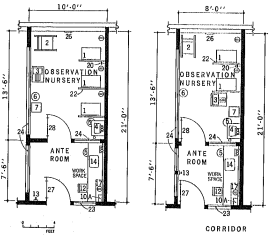

Figure 9. Detailed plans for observation nurseries, showing maximum (3 bassinets) and minimum (2 bassinets) sizes.

## PREMATURE NURSERIES

Since premature infants require more specialized care than full-term infants, a reasonable ratio of staff to premature infants is set at 1 to 5.[2] Thus, a premature nursery room (Figure 8) should accommodate no more than five infants and should have a minimum area of 30 square feet per infant. A separate nursery is usually not indicated if less than five infants will be cared for at one time. In such cases, space for them can be provided in the full-term nursery, unless the combined premature and full-term complement exceeds the optimum recommended. During periods of low census it is feasible to care for premature infants in full-term nurseries.

One nurses' station may serve two premature nurseries, or a premature nursery and a full-term nursery. If one nursery room remains unpaired with another, it will require a separate nurses' station.

In a premature nursery where suitable environmental temperature and humidity are maintained, only 50 to 75 percent of the premature infants may require incubators. Furnishings for premature nurseries will be similar to those in full-term nurseries, aside from the incubators. A utility table, infant scales, and a rocking chair should be available to use for the prematures who do not require incubators.

One double oxygen outlet should be provided for every two premature bassinets or incubators. Also, each premature nursery should contain a suction bulb or a mechanical suction device with a soft rubber tip and individual catheters for individual infants. The controls of the suction device should include a regulator to limit the suction to avoid injury to the infant. Suction should be provided from a central system.

## OBSERVATION NURSERY

An observation nursery (Figure 9) should be provided for infants suspected of infection. When positive diagnosis is made, the infant is transferred elsewhere in the hospital and placed on isolation precautions. However, if diagnosis is not positive the infant may be returned to the regular nursery provided he has not been exposed to an infected infant in the observation nursery.

The observation nursery should be a completely separate unit, but it should be located adjacent to a full-term nursery with a glazed partition between to permit observation by the nursery staff. A minimum of 40 square feet per bassinet is recommended to provide adequate space for bedside care and treatment of the infant.

Observation bassinets should be provided at the rate of 10 percent of the full-term bassinets. A minimum of two and a maximum of three bassinets are recommended for each observation nursery. These nurseries may be repeated as many times as necessary to provide the required complement of observation bassinets.

An anteroom should be provided between the nursery and the corridor. This area should contain the same facilities as the work and treatment areas for full-term nurseries. Such facilities include a work counter for the nurse, a sink with gooseneck spout and knee or foot controls, a hook strip, and shelves or cabinet for clean gowns for the physician and nurse.

Furnishings for observation nurseries will be similar to those in full-term nurseries.

## NURSES' STATION

The nurses' station serves as a control point and also provides workspace for the nurse and an area for treating infants. The nurse's desk should be placed so that the entrances from the corridor and from the station to the nurseries can be supervised. The nurseries should be visible through observation windows in the partitions. A rack for charts, a waste receptacle with foot-controlled cover, and two chairs for the nurse and the physician will be needed at the nurse's desk.

A station between two nurseries will require a double desk for two nurses. No more than two full-term nurseries, each housing 8 to 10 bassinets, should be served by one nurses' station. In the cohort system, four 4-bassinet nurseries may be so served.

### Workspace

The nurse's workspace should occupy a separate area at one end of the nurses' station. This arrangement affords the nurse full view of the infants while attending to most activities. The clean workspace on one side of the area should have a counter, open below, with a sink with gooseneck spout and knee or foot controls, cabinets above, a refrigerator to hold a 24-hour supply of milk mixtures, and a mobile bottle warmer. The soiled workspace on the opposite side should be provided with a counter, open below, with a double compartment sink with gooseneck spout and knee or foot controls, and a waste receptacle with removable waxed liner and foot-controlled cover.

### Treatment Area

The treatment area should be located near the entrance to the nurses' station so the physician need not walk through the workspace. Routine examinations and treatments should be carried out at the bassinets in the nursery. A treatment table about 24 inches wide, 36 inches long, and 36 inches high, on 3-inch ball-bearing casters with a wheel-lock, should be provided here for occasional treatments. A sanitary can with foot-controlled cover for diapers is also needed, along with a linen hamper with foot-controlled cover for soiled caps, gowns, and masks.

### Physicians' Scrub

A physicians' scrub area, located at the entrance to the nurses' station, should contain a lavatory with a gooseneck spout, hot and cold running water, with foot or knee controls. Adjacent to this lavatory, a locker or shelves for clean gowns should be provided, along with a soap dispenser with foot controls, an enclosed-type paper towel dispenser, a waste receptacle with foot-controlled cover, and a rack or hook for the physician's suit coat.

The description of the full-term nurses' station also applies to premature nurseries, except that the treatment table is omitted.

## ACCESSORY ROOMS NOT SHOWN IN THE PLANS

### Formula Room

The location of the formula room and the supervision of the work of preparing the feedings will vary with the type of hospital, its personnel, and its particular features. Under any circumstances, a separate room must be provided for the sole purpose of preparing the milk mixtures. The room should be situated convenient to the department providing supervision and in a location where the possibility of contamination is minimal.

Information on the design of formula rooms is incorporated in the publication by the American Hospital Association entitled "Procedures and Layouts for the Infant Formula Room."

### Nurses' Locker Room

A nurses' locker room should be provided as part of the nursery suite or adjacent to it. It should be designed to accommodate the total complement of nurses who are on duty in the nursery during one shift. The nurses' locker room for the adjoining maternity nursing unit may be used if it is large enough to accommodate the above complement of nurses.

### Demonstration Room

In hospitals of the sizes illustrated, the conference room or the mother's bedroom can be used by the nurse to teach the mother how to bathe and feed her infant. However, a separate demonstration room should be provided in the larger hospital.

### Storage

A storage space for extra nursery equipment should be located reasonably accessible to the nursery area unless central supply has this responsibility.

## FINISHES

The walls and floors of the nurseries and accessory rooms should be constructed of smooth, nonabsorbent, washable material; and it is preferable to have all corners rounded to facilitate cleaning. The ceilings should be finished with materials that are easily washable.

A pure white or off-white color, in a nonglare finish, is recommended on all surfaces above the bottom of the bassinets. This color provides a good background for observation of infants at a distance as well as close up.

## AIR CONDITIONING AND VENTILATION

Air conditioning will be required for nurseries to ensure the constant temperature and humidity conditions so beneficial to care of the newborn. In addition, the air-conditioning system, through the ventilating features, will remove odor and will materially reduce the bacterial contamination of the environment. In this latter respect air conditioning will supplement the many aseptic techniques practiced to reduce the hazard of infection and cross-infection. However, the effectiveness of the system in reducing the aerial transmission of bacterial contamination into and within the nursery area will be entirely dependent upon keeping all doors leading to or within the nursery area tightly closed when not in use. To ensure the quality of the air of the environment, the air of other areas of the hospital should not be circulated through the nurseries. The system should provide a minimum of 12 air changes per hour of outdoor air with no recirculation. Air movement patterns should be carefully designed to reduce the possibility of drafts, which may adversely affect the infants.

The system should include filters with an efficiency of 90 percent or more in the removal of particulates in the 1 to 5 micron size range. These high-efficiency filters should be installed at a location downstream from the air-conditioning equipment and as close as possible to the nursery area, consistent with good design, which will permit easy accessibility for servicing. This location will provide protection against any contamination accumulating on the equipment coils or in the duct system. In addition to this filter, a roughing filter and a medium efficiency filter should be placed in series upstream from the air-conditioning equipment. These roughing and medium-grade filters will remove large particles from the air stream, protect the air-conditioning equipment, and prolong the life of the more expensive high-efficiency filter. In order to provide an accurate means of determining the condition of the filters without relying upon judgment based upon visual observation, a manometer should be installed in the filter system to indicate the pressure drop across each bank of filters. This manometer should be installed in an easily visible location.

The use of permanently installed ultraviolet lights for continuous operation during occupancy of the nurseries is not recommended because (1) the bactericidal effectiveness of the light is severely limited by the shielding required to protect the infants, (2) considerable maintenance is required to keep them effective, and (3) they engender a false sense of security. Permanently installed high-intensity ultraviolet lights for sterilization of nurseries when they are unoccupied have been suggested. However, such installations present a considerable hazard, as their use is subject to human error and mechanical failure which could result in serious harm if the lights became activated during occupancy of the nursery. Portable-type high-intensity ultraviolet light sterilizers, which are moved into an unoccupied room during cleanup, eliminate much of the hazard associated with the permanently installed lights, and should be equally effective.

### Full-Term Nursery

A temperature of 75°F and a relative humidity of 50 percent are recommended for the full-term nursery, nurses' station, and workspace. Similar conditions should be maintained in all these areas, as care of the infants may require that they be moved periodically from the nursery to the workspace and examination room. The temperature and relative humidity of the maternity nursing section should be similarly maintained to protect the infants against temperature changes during visits with the mothers. The nurseries should have a positive air pressure, approximately 0.05-inch water gauge higher than the air pressures of the examination room and workspace, which in turn should have an air pressure approximately 0.05-inch water gauge higher than the corridor. With this pressurization arrangement the nurseries will have a pressure 0.1-inch water gauge higher than the corridor. This pressurization will create an outward movement of air from the nurseries to the workspace and thence to the corridor, thus preventing the entry of contaminated air to the nursery area.

### Premature Nursery

The premature nursery requires a temperature of 80°F and a relative humidity of 55 to 65 percent. Although individual incubators provide close regulation of temperature and humidity, these conditions should be maintained in the nursery to accommodate the infant who must be removed from the incubator in an emergency and for those not requiring an incubator. This nursery should be pressurized in the same manner as described for the full-term nursery.

### Observation Nursery

The observation nursery will require a temperature of 75°F and 50 percent relative humidity. Because the infants in this nursery may be infected, the air of this nursery should have a negative air pressure of 0.05-inch water gauge relative to the air pressure of the workroom which serves it, and the workroom in turn should have a positive pressure of 0.05-inch water gauge relative to the air pressure of the corridor or other adjoining rooms. Under these conditions there would be an outward movement of air from the workroom to both the corridor and the observation nursery.

To ensure that the proper air pressures are maintained in the various nurseries, a manometer should be installed in the workroom to indicate direct readings of the air pressures in the nurseries, work areas, and corridor. Proper pressurization cannot be maintained unless doors between these rooms are closely fitted and are kept closed when not in use.

The nursery corridor must be considered a highly contaminated area; therefore, to maintain maximum possible aseptic conditions in the nursery, where a door is provided leading directly from a nursery to the corridor, it is imperative that this door be kept tightly closed except when in use.

## ELECTRICAL SERVICE

Electrical service in nursery suites for the newborn should provide for convenience and efficiency in rendering care to the infants. Circuits for lighting and convenience outlets in the nurseries should be connected to an emergency source of power to provide against interruption in service.

Receptacles should be installed where plug-in service is required or anticipated. Usually a 15-ampere duplex receptacle should be available for use at each bassinet, two 20-ampere duplex receptacles at the nurses' desk, in the workspace, and at the treatment table. Receptacles, installed on 15- and 20-ampere branch circuits, are required to be of the grounding type. Receptacles in workspaces and in treatment areas should be located above table or countertops for convenient use.

Clocks, preferably with sweep second hands, should be located conveniently for observation from the nurses' desk or workspace, the treatment areas, and nurseries.

Lighting levels in the nurseries should be controlled by switches and so arranged as to provide 20 footcandles general illumination for routine nursing care and 100 footcandles for examinations. This lighting should be provided by deluxe-type fluorescent cool white or a combination of deluxe cool white and standard warm white lamps. This required illumination can also be provided by a portable lamp. Luminaires for general lighting should be of a type and so installed that the brightness of any luminaire, ceiling or wall surface as seen from any working or normal bassinet position, should be less than 90 footlamberts. Parabolic-type louvres are suggested as one means of providing this light control.

The visual requirement at the nurses' desk is somewhat comparable to that for office work, such as reading and transcribing, for which 70 footcandles is recommended. The lighting level at the clean work counter and the treatment table should be 100 footcandles.

Enclosed recessed ceiling lights will help reduce dust-catching areas, but they are usually more costly and less effective in lighting the room uniformly than either surface-mounted or suspended luminaires.

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## REFERENCES

1. WHO Technical Report Series No. 217, 1961, Public Health Aspects of Low Birth Weight. Third report of the Expert Committee on Maternal and Child Health. World Health Organization, Geneva, Switzerland.

2. Standard and Recommendations for the Care of Newborn Full-Term and Premature Infants, American Academy of Pediatrics, Evanston, Illinois, Revised 1962, 144 pp.

# APPENDIX

## EQUIPMENT LIST

Suggested equipment lists for nurseries in 50-, 100-, and 200-bed general hospitals are presented below.

Group I equipment includes built-in items usually covered by the construction contract. Examples are cabinets, counters, and sinks.

Group II equipment includes items of 5 years' life or more, not normally purchased through the construction contract. Furniture and equipment having a reasonably fixed location in the building but capable of being moved (i.e., bassinets, incubators, and tables for infant scales) are in this category.

Group III equipment includes required linens, utensils, and instruments. This equipment is not listed here because it is available from Central Service.

For a complete listing of suggested equipment for hospitals, see "Hospital Equipment Planning Guide," Public Health Service Publication No. 930-D-4. Free single copies are available from the Public Health Service, Department of Health, Education, and Welfare, Washington 25, D. C.

A blank under the column "suggested quantity" in the equipment lists indicates that the item is required but the quantity is not determined. The quantity is determined upon correlation of schematic plans.

The dash (-) indicates that the item is not applicable to the particular area.

| Facility | Suggested quantity | | |
|---|---|---|---|
| | No. of beds | | |
| | 50 | 100 | 200 |
| NURSERY, 8-BASSINET | 1 | 2 | 3 |
| Group I Equipment | | | |
| Dispenser | | | |
| Paper towel | 1 | 2 | 3 |
| Soap | 1 | 2 | 3 |
| Lavatory, gooseneck spout, knee or foot control | 1 | 2 | 3 |
| Outlet, central piped system | | | |
| Oxygen, double | 2 | 4 | 6 |
| Vacuum (suction) | 2 | 4 | 6 |
| Shelf above lavatory | 1 | 2 | 3 |
| Window, view, clear glass | | | |
| Between nurses'station | | | |
| Corridor * | | | |
| Group II Equipment | | | |
| Bassinet, cabinet type | 8 | 16 | 24 |
| Chair, rocking | 1 | 2 | 3 |
| Hamper, soiled linen on casters, foot operated, closed top | 1 | 2 | 3 |
| Oxygen accessories for central piped system (must fit installed wall unit) | | | |
| Flowmeter, complete with adapter and hose nipple outlet | 4 | 8 | 12 |
| Humidifier | 4 | 8 | 12 |
| Nebulizer | 4 | 8 | 12 |
| Pad, bassinet | 8 | 16 | 24 |
| Receptacle, foot operated, closed top | | | |
| Soiled diaper | 1 | 2 | 3 |
| Waste | 1 | 2 | 3 |
| Scale, infant | 1 | 2 | 3 |
| Table, for infant scale, steel, 16 by 20 inches with railing around 3 sides of top, drawer and casters | 1 | 2 | 3 |

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*Shall comply with requirements of National Fire Protection Association, Bulletin No. 56.

| Facility | Suggested quantity | | |
|---|---|---|---|
| | No. of beds | | |
| | 50 | 100 | 200 |
| Vacuum (suction) accessories for central piped system (must fit installed wall unit) | | | |
| Suction bottle wall unit, complete with regulator, gauge, 1 quart bottle, cap and hose assembly . . . . . . . . . | 2 | 4 | 6 |
| Suction regulator, intermittent, adjustable, 90 mm. to 120 mm. Hg . . . . . . . | 2 | 4 | 6 |
| NURSERY, 4-BASSINET . . . . . . . . . | - | - | 1 |
| Group I Equipment | | | |
| Dispenser | | | |
| Paper towel . . . . . . . . . . . | - | - | 1 |
| Soap . . . . . . . . . . . . . | - | - | 1 |
| Lavatory, gooseneck spout, knee or foot control . | - | - | 1 |
| Outlet, central piped system | | | |
| Oxygen, double . . . . . . . . . . | - | - | 1 |
| Vacuum (suction) . . . . . . . . . | - | - | 1 |
| Shelf above lavatory . . . . . . . . . | - | - | 1 |
| Window, view, clear glass | | | |
| Between nurses' station . . . . . . . | - | - | |
| Corridor*. . . . . . . . . . . . | - | - | |
| Group II Equipment | | | |
| Bassinet, cabinet type . . . . . . . . . | - | - | 4 |
| Chair, rocking . . . . . . . . . . . | - | - | 1 |
| Hamper, soiled linen, on casters, foot operated, closed top . . . . . . . . . . . . | - | - | 1 |
| Oxygen accessories for central piped system (must fit installed wall unit) | | | |
| Flowmeter, complete with adapter and hose nipple outlet . . . . . . . . . . . | - | - | 2 |
| Humidifier . . . . . . . . . . . | - | - | 2 |
| Nebulizer. . . . . . . . . . . . | - | - | 2 |
| Pad, bassinet . . . . . . . . . . . | - | - | 4 |
| Receptacle, foot operated closed top | | | |
| Soiled diaper. . . . . . . . . . . | - | - | 1 |
| Waste . . . . . . . . . . . . . | - | - | 1 |

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*Shall comply with requirements of National Fire Protection Association, Bulletin No. 56.

| Facility | Suggested quantity | | |
|---|---|---|---|
| | No. of beds | | |
| | 50 | 100 | 200 |
| Scale, infant | | | |
| Table, for infant scale, steel, 16 by 20 inches | - | - | 1 |
| with railing around 3 sides of top, drawer and casters | - | - | 1 |
| Vacuum (suction) accessories for central piped system (must fit installed wall unit) | | | |
| Suction bottle wall unit, complete with regulator, gauge, 1 quart bottle, cap and hose assembly | - | - | 1 |
| Suction regulator, intermittent, adjustable, 90 mm. to 120 mm. Hg. | - | - | 1 |
| PREMATURE NURSERY | 1 | 1 | 2 |
| Group I Equipment | | | |
| Dispenser | | | |
| Paper towel | 1 | 1 | 2 |
| Soap | 1 | 1 | 2 |
| Lavatory, gooseneck spout, knee or foot control | 1 | 1 | 2 |
| Outlet, central piped system | | | |
| Oxygen, double | 2 | 3 | 5 |
| Vacuum (suction) | 3 | 5 | 9 |
| Shelf above lavatory | 1 | 1 | 2 |
| Window, view, clear glass | | | |
| Between nurses' station | | | |
| Group II Equipment | | | |
| Analyzer, oxygen | 1 | 1 | 1 |
| Hamper, soiled linen, on casters, foot operated closed top | 1 | 1 | 2 |
| Incubator, infant, cabinet type with oxygen limiting device* | 3 | 5 | 9 |
| Oxygen accessories for central piped system (must fit installed wall unit) | | | |
| Flowmeter, complete with adapter and hose nipple outlet | 3 | 5 | 9 |

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*According to the standards and recommendations of the American Academy of Pediatrics.

| Facility | Suggested quantity | | |
|---|---|---|---|
| | No. of beds | | |
| | 50 | 100 | 200 |
| Humidifier | 3 | 5 | 9 |
| Nebulizer | 3 | 5 | 9 |
| Pad, incubator | 3 | 5 | 9 |
| Receptacle, foot operated closed top | | | |
| Soiled diaper | 1 | 1 | 2 |
| Waste | 1 | 1 | 2 |
| Scale, infant, incubator | 1 | 1 | 2 |
| Vacuum (suction) accessories for central piped system (must fit installed wall unit) | | | |
| Suction bottle wall unit, complete with regulator, gauge, 1 quart bottle, cap and hose assembly | 3 | 5 | 9 |
| Suction regulator, intermittent, adjustable, 90 mm. to 120 mm. Hg. | 3 | 5 | 9 |
| OBSERVATION NURSERY | 1 | 1 | 1 |
| Group I Equipment | | | |
| Dispenser | | | |
| Paper towel | 1 | 1 | 1 |
| Soap | 1 | 1 | 1 |
| Lavatory, gooseneck spout, knee or foot control | | | |
| Outlet, central piped system | | | |
| Oxygen, double | 1 | 1 | 2 |
| Vacuum (suction) | 1 | 1 | 2 |
| Shelf above lavatory. | 1 | 1 | 1 |
| Group II Equipment | | | |
| Bassinet, cabinet type | 2 | 2 | 3 |
| Hamper, soiled, linen, on casters, foot operated closed top | 1 | 1 | 1 |
| Oxygen accessories for central piped system (must fit installed wall unit) | | | |
| Flowmeter, complete with adapter and hose nipple outlet. | 2 | 2 | 3 |
| Humidifier. | 2 | 2 | 3 |
| Nebulizer | 2 | 2 | 3 |
| Pad, bassinet. | 2 | 2 | 3 |

| Facility | Suggested quantity<br>No. of beds<br>50 | 100 | 200 |
|---|---|---|---|
| Receptacle, foot operated closed top | | | |
| Soiled diaper | 1 | 1 | 1 |
| Waste | 1 | 1 | 1 |
| Scale, infant | 1 | 1 | 1 |
| Table, for infant scale, steel, 16 by 20 inches with railing around 3 sides of top, drawer and casters | 1 | 1 | 1 |
| Vacuum (suction) accessories for central piped system (must fit installed wall unit) | | | |
| Suction bottle wall unit, complete with regulator, gauge, 1 quart bottle, cap and hose assembly | 1 | 1 | 2 |
| Suction regulator, intermittent, adjustable, 90 mm. to 120 mm. Hg. | 1 | 1 | 2 |
| ANTEROOM | 1 | 1 | 1 |
| Group 1 Equipment | | | |
| Cabinet, wall. | 1 | 1 | 1 |
| Clock outlet and electric clock | 1 | 1 | 1 |
| Counter, 36 inches high, open below | 1 | 1 | 1 |
| Dispenser | | | |
| Paper towel | 1 | 1 | 1 |
| Soap | 1 | 1 | 1 |
| Hook strip | 1 | 1 | 1 |
| Rack, wall | | | |
| 4-chart holders | 1 | 1 | - |
| 6-chart holders | - | - | 1 |
| Sink, in counter, gooseneck spout, knee or foot control | 1 | 1 | 1 |
| Group II Equipment | | | |
| Chair, office, swivel without arms | 1 | 1 | 1 |
| Receptacle, waste, foot operated closed top | 1 | 1 | 1 |

| acility | Suggested quantity | | |
|---|---|---|---|
| | No. of beds | | |
| | 50 | 100 | 200 |
| URSES STATION, WORK SPACE, EXAMINATION ND TREATMENT ROOM | 1 | 1 | 2 |
| roup I Equipment | | | |
| abinet, wall | 1 | 1 | 2 |
| lock outlet and electric clock | 1 | 1 | 2 |
| ounter, 36 inches high, open below | 2 | 2 | 4 |
| ispenser | | | |
| Paper towel | 1 | 1 | 2 |
| Soap | 1 | 1 | 2 |
| ook strip | 1 | 1 | 2 |
| avatory, gooseneck spout, knee or foot control | 1 | 1 | 2 |
| eceptacle, soap | 1 | 1 | 2 |
| helf above lavatory | 1 | 1 | 2 |
| helves for clean gowns and supplies | | | |
| ink in counter, gooseneck spout, knee or foot control | 1 | 1 | 2 |
| Two-compartment | 1 | 1 | 2 |
| indow, view, nursery, clear glass | | | |
| roup II Equipment | | | |
| hair, office, swivel without arms | 2 | 2 | 4 |
| esk, chart, nurses' with rack | 1 | 1 | 2 |
| amper, linen, soiled, on casters, foot operated closed top | 1 | 1 | 2 |
| armer, bottle, portable with carriage | 1 | 1 | 2 |
| eceptacle, foot operated closed top | | | |
| Soiled diaper | 1 | 1 | 2 |
| Waste | 1 | 1 | 2 |
| efrigerator, free standing, 10 cubic feet | 1 | 1 | 2 |
| able, steel, 24 by 36 inches | 1 | 1 | 2 |

| | Suggested quantity | | |
|---|---|---|---|
| | No. of beds | | |
| Facility | 50 | 100 | 200 |
| ACCESSORY ROOMS NOT SHOWN IN THE PLANS | | | |
| FORMULA ROOM | 1 | 1 | 1 |
| Bottle Washing | 1 | 1 | 1 |
| Group I Equipment | | | |
| Counter, 36 inches high, open below | 2 | 2 | 2 |
| Lavatory | 1 | 1 | 1 |
| Rinser, jet, nursing bottle | 1 | 1 | 1 |
| Sink in counter, gooseneck spout, knee or foot control | 2 | 2 | 2 |
| Washer | | | |
| Bottle, nursing, electric with brushes | 1 | 1 | 1 |
| Nipple | 1 | 1 | 1 |
| Group II Equipment | | | |
| Cart, transfer | 1 | 1 | 1 |
| Receptacle, waste, foot operated closed top | 1 | 1 | 1 |
| Preparation and filling | 1 | 1 | 1 |
| Group I Equipment | | | |
| Bar, towel | 1 | 1 | 1 |
| Blinds, window | | | |
| Board, bulletin, 26 by 24 inches | 1 | 1 | 1 |
| Clock outlet and electric clock | 1 | 1 | 1 |
| Counter, 36 inches high with cabinets below | 1 | 1 | 1 |
| Dispenser | | | |
| Paper towel | 1 | 1 | 1 |
| Soap | 1 | 1 | 1 |
| Lavatory, gooseneck spout, knee or foot control | 1 | 1 | 1 |
| Shelf above lavatory | 1 | 1 | 1 |
| Sink in counter, gooseneck spout, knee or foot control | 1 | 1 | 1 |

| Facility | Suggested quantity | | |
|---|---|---|---|
| | No. of beds | | |
| | 50 | 100 | 200 |
| Sterilizer, pressure, infant formula | | | |
| 16 by 24 inches | 1 | - | - |
| 20 by 36 inches | - | 1 | - |
| 24 by 24 by 36 inches | - | - | 1 |
| Group II Equipment | | | |
| Blender, electric | 1 | 1 | 1 |
| Cart, transfer | 1 | 1 | 1 |
| Dispenser, milk formula | 1 | 1 | 1 |
| Hot plate, electric, double element, 3 heat control, heavy duty | 1 | 1 | 1 |
| Receptacle, waste, foot operated closed top | 1 | 1 | 1 |
| Refrigerator, milk formula, heavy duty | | | |
| 11 cubic feet | 1 | - | - |
| 25 cubic feet | - | 1 | - |
| 30 cubic feet | - | - | 1 |
| NURSES' LOCKER ROOM | 1 | 1 | 1 |
| Group I Equipment | | | |
| Blinds, window | | | |
| Clock outlet and electric clock | 1 | 1 | 1 |
| Counter, 30 inches high, open below | 1 | 1 | 1 |
| Locker, clothes, steel, 15 by 18 by 60 inches | 2 | 3 | 5 |
| Mirror above counter | 1 | 1 | 1 |
| Group II Equipment | | | |
| Chair | | | |
| Easy, seat and back cushions | 1 | 1 | 1 |
| Straight | 1 | 2 | 2 |
| Hamper, linen | 1 | 1 | 1 |

| Facility | Suggested quantity<br>No. of beds<br>50 | <br><br>100 | <br><br>200 |
|---|---|---|---|
| DEMONSTRATION ROOM | - | - | 1 |
| Group I Equipment | | | |
| Counter, 36 inches high, cabinets and drawers below | - | - | 1 |
| Dispenser | | | |
| Paper towel | - | - | 1 |
| Soap | - | - | 1 |
| Sink in counter, gooseneck spout, knee or foot control | - | - | 1 |
| Group II Equipment | | | |
| Board, chalk, portable, 3 by 4 feet | - | - | 1 |
| Chair | | | |
| Office, arm | - | - | 2 |
| Straight | - | - | 2 |
| Hot plate, electric, single element, heavy duty | - | - | 1 |
| Receptacle, foot operated closed top | | | |
| Soiled diaper | - | - | 1 |
| Waste | - | - | 1 |
| Scale, infant | - | - | 1 |
| Table, steel, 24 by 48 inches | - | - | 1 |
| Infant scale, 60 by 20 inches with railing around 3 sides of top, drawer and casters | - | - | 1 |

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